

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 July 2004 (08.07.2004)

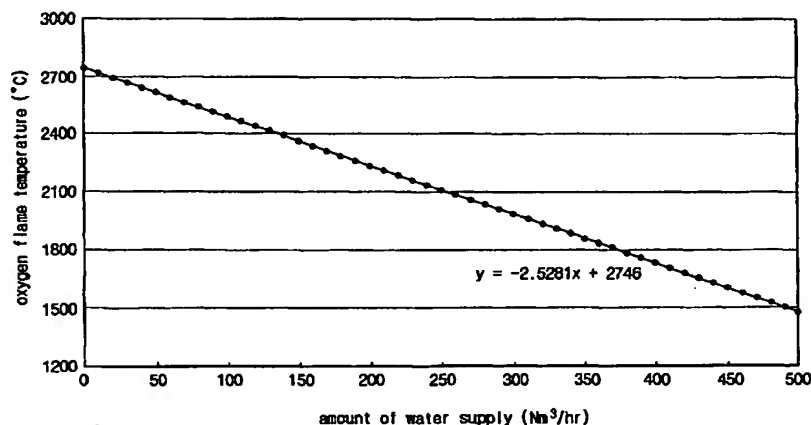
PCT

(10) International Publication Number  
**WO 2004/057038 A1**

- (51) International Patent Classification<sup>7</sup>: **C21B 13/00**
- (21) International Application Number:  
PCT/KR2003/002815
- (22) International Filing Date:  
23 December 2003 (23.12.2003)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data:  
10-2002-0082634  
23 December 2002 (23.12.2002) KR
- (71) Applicants (for all designated States except US): POSCO [KR/KR]; 1 Goedong-dong, Nam-ku, 790-300 Pohang-shi, Kyungsangbuk-do (KR). RESEARCH INSTITUTE OF INDUSTRIAL SCIENCE & TECHNOLOGY [KR/KR]; San 32, Hyoja-dong, Nam-ku, 790-330 Pohang-city, Kyungsangbuk-do (KR). VOEST-ALPINE INDUSTRIEANLAGENBAU GMBH [AT/AT]; Kaiser-Turmstrasse 44, A-4031 Linz (AT).
- (72) Inventors; and  
(75) Inventors/Applicants (for US only): SHIN, Myoung-Kyun [KR/KR]; San 32, Hyoja-dong, Nam-ku, 790-330 Pohang-city, Kyungsangbuk-do (KR). LEE, Jun-Hyuk [KR/KR]; San 32, Hyoja-dong, Nam-ku, 790-330 Pohang-city, Kyungsangbuk-do (KR).
- (74) Agent: YOU ME PATENT & LAW FIRM; 825-33 Teheran Bldg., Yoksam-dong, Kangnam-Ku, Seoul 135-080 (KR).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,

[Continued on next page]

(54) Title: AN APPARATUS FOR MANUFACTURING MOLTENS IRONS TO IMPROVE OPERATION OF FLUIDIZED BED TYPE REDUCTION APPARATUS AND MANUFACTURING METHOD USING THE SAME



(57) Abstract: The present invention relates to an apparatus and method for manufacturing molten iron. The method for manufacturing molten iron includes producing a mixture containing iron by drying and mixing iron-containing ore and additives; passing the mixture containing iron through one or more successively-connected fluidized beds so that the mixture is reduced and calcined to thereby perform conversion into a reduced material; forming a coal packed bed, which is a heat source in which the reduced material has been melted; charging the reduced material to the coal packed bed and supplying oxygen to the coal-packed bed to manufacture iron; and supplying reduced gas exhausted from the coal-packed bed to the fluidized bed, wherein in the conversion of the mixture to a reduced material, oxygen is directly supplied and combusted in an area where reduced gas flows to the fluidized bed. The apparatus for manufacturing molten iron of the present invention uses this method for manufacturing molten iron. Through use of the present invention, the reduced gas passing through the fluidized beds may be improved, and cohesion of the iron-containing fine ores may be prevented.



SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*